No. 200400273

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Z Seeds, LLC and Rutgers, The State Univ. of New Jersey

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

FESCUE, TALL

'Avenger'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-ninth day of November, in the year two thousand and seven.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
Z Seeds, LLC and Rutgers, The State Univ. of New Jersey
(BT:10/31/2006)

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
Roberts L1Z or L1Z

3. VARIETY NAME
Avenger

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
P.O. Box 8
Berlin, MD 21811

Cook College
88 Lipman Dr.
New Brunswick, NJ
08901-8525

5. TELEPHONE *(Include area code)*
410-641-3752

FOR OFFICIAL USE ONLY

PVPO NUMBER
200400273

6. FAX *(Include area code)*
410-641-3754

FILING DATE
July 20, 2004

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
LLC & Public University

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
Maryland

9. DATE OF INCORPORATION
Jan. 2000

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

John Zajac, President
Z Seeds, LLC
P.O. Box 8
Berlin, MD 21811

William A. Meyer, Ph.D.
Adelphia Research Center
594 Halls Mill Rd.
Freehold, NJ 07728

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 3652.00
DATE 7/20/04

CERTIFICATION FEE:
$ 768.00
DATE 10/12/2007

11. TELEPHONE *(Include area code)*
410-641-3752

12. FAX *(Include area code)*
410-641-3754

13. E-MAIL
zajacjj@earthlink.net

14. CROP KIND *(Common Name)*
Tall fescue

15. GENUS AND SPECIES NAME OF CROP
Festuca arundinacea

16. FAMILY NAME *(Botanical)*
Poaceae

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☐ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)* $3650.00
g. ☒ Filing and Examination Fee ($2,705), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes", answer items 20 and 21 below)* ☒ NO *(If "no", go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☐ YES ☒ NO "No"
IF YES, WHICH CLASSES? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
(BT: 10/31/2006)

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1,2,3, *etc.* 4 FOUNDATION 4 REGISTERED 7 CERTIFIED
(BT: 10/31/2006)
(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☐ YES ☒ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER

NAME *(Please print or type)*
Keith R. Cooper

CAPACITY OR TITLE
Acting Exec. Dean of Agriculture & Natural Resources

DATE
6/8/04

SIGNATURE OF OWNER

NAME *(Please print or type)*
John Zajac

CAPACITY OR TITLE
President

DATE
5/3/4

Origin and Breeding History of Avenger (L1Z) Tall Fescue

Avenger (L1Z) tall fescue (*Festuca arundinacea* Schreb.) is a medium low-growing, dark green, medium-fine-leaved, turf-type tall fescue selected from the maternal progenies of 174 clones. Avenger was selected for high shoot density, dark-green color, semi-dwarf growth habit, and medium-early maturity. Approximately 92% of the parental germplasm in Avenger contain the Neotyphodium endophyte.

The 174 parents of Avenger were selected from maternal sources evaluated in progeny turf plots at the Rutgers Plant Science Research and Extension Farm at Adelphia, NJ from the 1997, 1998 and 1999 trials. Thirty-four percent of the maternal germplasm traces to several plants selected from or related to Apache. Approximately fifteen percent traces to a few plants selected from or related to Gazelle. Another fifteen percent traces to a few plants selected from the University of GA State Hospital in 1977. Approximately ten percent traces to a plant selected from the Princeton University campus and used in the development of Rebel. Another six percent traces to plants selected from or related to Amigo. Five percent traces to several plants used in a inter-specific crossing program with perennial ryegrass. Four percent traces to a few plants selected from a farm in North Carolina, 1975 and used in the development of Rebel II. Another four percent traces to a few plants selected from southern GA. Two percent traces to a few plants selected from a park in Lexington, KY in 1979. Another two percent trace to plants selected from Atlanta, GA near GA tech before 1980.

All of the parental germplasm sources of Avenger tall fescue originate from plants selected from old turfs of the United States in a germplasm collection program initiated in 1962, to plants selected from or related to Rebel tall fescue (Funk et al., 1981). Attractive clones were selected from old turfs in Birmingham, AL; Athens, Atlanta, and Millegeville, GA; Preston, ID; Baltimore, MD; Bayonne, Jersey City, Elizabeth, Princeton, and Cape May, NJ; eastern North Carolina; Philadelphia, PA; Nashville, TN; Lexington, KY;

Cincinnati, OH; Dallas, TX; and northern Mississippi. The tall fescue plants selected from old turfs were of unknown origin. All were large patches of turf surviving in stressful environments indicating that they had persisted and developed over a period of many years.

A few hundred attractive, turf-type plants were collected and established in spaced-plant nurseries and/or frequently mowed clonal evaluation trials at Rutgers University. All but a few dozen of the most promising plants were quickly discarded. The best selections were very different from any tall fescue variety in existence at the time of collection. They produced lower-growing turfs with finer leaves, greater density, darker color, and greater tolerance of close mowing.

The most promising plants were identified by their persistence and appearance in old turfs and their performance in spaced-plant nurseries, mowed clonal evaluation tests, and single-plant progeny trails under turf maintenance. Intercrosses of the best performing plants were subjected to varying cycles of phenotypic and genotypic selection depending on their date of collection. New sources of germplasm were added to the breeding program as it became available from the continuing collection program. Each cycle of selection showed continued progress in producing lower-growing, darker green, attractive plants with improved turf performance scores. Selection was also effective in maintaining high seed yields, and good stress tolerance. Substantial progress was made in developing tall fescues with finer leaves, a lower growth profile, increased persistence under close mowing, and increased density.

Large numbers of single-plant progenies were seeded in turf evaluation trials at the Plant Science Research Farm at Adelphia, NJ in 1997, 1998 and 1999. The plants selected for progeny evaluation were selected from spaced-plant nurseries at Adelphia following varying cycles of phenotypic and genotypic selection of germplasm selected from old turfs and germplasm selected from or related to Rebel tall fescue.

Approximately, 7800 tillers were selected from the best performing single-plant progeny turf plots from the 1997, 1998 and 1999 tall fescue test at Adelphia. Eighty-three different single-plot progenies were selected from 1055 plots from 10 different populations from the 1997 test, 635 plots from 9 different populations from the 1998 test and 890 plots from 8 different populations from the 1999 test. These plants were established in greenhouse flats prior to their transfer to a spaced-plant nursery in the spring of 2000 consisting of 3900 plants. Selection was based on performance records as well as appearance at the time the plants were selected from these progeny plots. Selection of plants from each progeny was based on an attractive dark green color, medium-fine leaves, abundant tillering, high shoot density and freedom from disease.

In the spring of 2001, 194 plants were selected from this nursery based on dark green color, semi-dwarf growth habit, high seed yield potential, medium-early maturity and freedom from disease. These plants were moved to an isolated crossing block and inter-pollinated. Twenty-two plants were not harvested due to poor vigor and/or poor floret fertility. Seed from the remaining 174 plants was harvested and designated as breeder seed of Avenger (L1Z) tall fescue. These 174 plants were from 52 different single-plot progenies. These plants produced approximately 27 pounds of breeder seed. Replicated turf plots of Avenger were established at Adelphia in the fall of 2001 and entered in the 2001 National Tall Fescue test to be tested throughout the country. Eleven pounds of breeder seed was sent to Pickseed West for Mr. John Zajac, Berlin, MD. for foundation and certified seed increase.

References

1. Buckner, Robert C., Jerrell B. Powell, and Rod V. Frakes. 1979. Historical Development, in Buckner, Robert C., and Lowell P. Bush (editors) Tall Fescue. Agronomy Monograph 20. American Society of Agronomy, Crop Science Society

of America, Soil Science Society of America, Inc., Publishers. Madison, Wisconsin pages 1-8.

2. Funk, C.R., R.E. Engel, W.K. Dickson, and R.H. Hurley. 1981. Registration of Rebel tall fescue. Crop Sci. 21:632.

Diagram of Origin and Breeding History of Avenger (LIZ) Tall Fescue

1. 1962 to 1997

Germplasm collection, evaluation, and genetic improvement.

2. 1997-1999

Planted single-plant progenies of plants selected from current cycles of population improvement programs in closely mowed turf trials at Adelphia and North Brunswick, NJ.

3. 2000

Selected 7800 plants from 83 of the best performing single-plant progeny turf plots planted in 1997,1998 and 1999. Established 3900 selected plants in an isolated spaced-plant nursery at Adelphia, NJ.

4. 2001

One hundred, ninety-six plants were selected from this nursery and moved to an isolated crossing block. The plants were selected for dark green color, semi-dwarf growth habit, high seed yield potential, medium-early maturity and freedom from disease. Twenty-two plants were not harvested due to poor vigor and/or poor floret fertility. The 174 plants remaining were harvested as Avenger (LIZ) tall fescue. These 370 plants were from 52 different single-plot progenies. These plants produced approximately 27 pounds of breeder seed. Replicated turf plots of Avenger were established at Adelphia in the fall of 2001 and entered in the 2001 National Tall Fescue test to be tested throughout the country. Eleven pounds of breeder seed was sent to Pickseed West/Roberts Seed Co. for foundation and certified seed increase. Additional breeder seed has been produced along with foundation/registered/certified classes of seed for the 5 years between 2001-2006. *Avenger* has been observed to be uniform and stable during this time period. No variants have been observed during this time.

200400273

Exhibit B
Summary of Variety Distinctness
***Avenger* Tall Fescue**

Avenger tall fescue is a new cultivar. ***Avenger*** is most similar to the cultivar *Silverado*. The two cultivars can be distinguished based on anthesis date. ***Avenger*** flowers 6 days earlier than *Silverado* (Table 1).

Table 1. Anthesis date of tall fescue cultivars for two growing seasons in western Oregon.†

Cultivar	2002	2003
Avenger	**June 2**	**May 28**
Watchdog	May 31	May 26
Kentucky 31	June 2	May 26
Bonsai	June 6	June 2
Wrangler	June 4	May 29
Crewcut	June 7	June 1
Bonanza	June 6	June 1
Silverado	June 8	June 3
LSD@0.05	1 day	1 day

† Data collected from spaced planted progenies of each cultivar from a nursery established at the research facility of Pickseed West, Inc., Albany, OR. Nursery was established in November 2001, using randomized complete block experimental design, with three replications of 20 progeny for each replication. Progeny were observed both for the 2002 and 2003 seasons.

U.S. DEPARTMENT OF AGRICULTURE
PLANT VARIETY PROTECTION OFFICE, AMS, USDA
NATIONAL AGRICULTURAL LIBRARY Bldg., Rm. 500
10301 BALTIMORE Blvd.
BELTSVILLE, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY
TALL & MEADOW FESCUES
(*Festuca* spp.)

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
Z Seeds, LLC and Rutgers, The State Univ. of New Jersey	**Roberts L1Z or L1Z**	***Avenger***

(BT:10/31/2006)

ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code)
P.O. Box 8, Berlin, MD 21811 **Cook College,88 Lipman Dr.,New Brunswick, NJ 08901-8525**

FOR OFFICIAL USE ONLY
PVPO NUMBER
200400273

Place the appropriate number that describes the varietal characteristic of this variety in the boxes below. Use leading zeroes when necessary (e.g. 089). Characteristics described, including numerical measurements, should represent those that are typical for the variety. Measured data should be for SPACED PLANTS. Royal Horticultural Society or any recognized color fan may be used to determine plant colors. Characteristics marked with an asterisk * are characteristics which should be recorded.

* 1. SPECIES: (With comparison varieties, use varieties within the species of the application variety)

__1___ 1 = *F. arundinacea* (Tall)

Turf Types

1 = Kentucky 31 2 = Rebel 3 = Olympic 4 = Bonanza 5 = Arid 6 = Rebel II
7 = Shortstop 8 = Silverado 9 = Rebel Jr. 10 = Mini Mustang 11 = Crewcut 12 = Bonsai
13 = Caynne

Forage Types

20 = Kentucky 31 21 = Martin 22 = Forager 23 = Mozark
24 = Kenhy 25 = AU Triumph 26 = Fawn 27 = Cajun

_____ 2 = *F. pratensis* (Meadow)

30 = Admira 31 = Beaumont 32 = Comtessa 33 = Ensign 34 = Trader

* 2. CYTOLOGY:

___**42**_____ Chromosome Number

3. ADAPTATION: (0 = Not Tested; 1 = Not Adapted; 2 = Adapted)

__2___Transition Zone _2____West _2____ Northeast __2___ Other (Specify):__**Pacific region**_____

* 4. MATURITY: (Date First Headed, 10% of Panicle Emergence)

__4___ Maturity Class 1 = Very early ( ) 2 = AU Triumph 3 = Early (Fawn) 4 = K31, Kenhy 5 = Medium (Rebel)
6 = Bonanza 7 = Late (Silverado) 8 = 9 = Very late

Date Headed ____**May 5**_____ Location ___**Albany,OR**_____

___5__ Days earlier than ___4__

Maturity same as __1__ Comparison Variety

_____Days later than _____

* 5. MATURE PLANT HEIGHT CM: (Average of 100 culms from crown to top of panicle, if panicle is nodding, straighten)

__ __ __**73.1**__ cm Height

__ __**13.7**__ cm shorter than __**4**_

Height same as _**8**__ Comparison Variety

__ __.__ cm taller than ___

* INTERNODE LENGTH CM: (First internode subtending the flag leaf)

__ __**11.9**__ cm Internode length

__ __**3.2**__ cm shorter than _**4**__

Length same as _**8**__ Comparison variety

__ __.__ cm longer than ___

* HEIGHT AT EAR EMERGENCE CM: (Flag leaf height from crown to flag leaf node)

__ __**32.3**__ cm Height

__ __**8.7**__ cm shorter than __**4**_

Height same as _**8**__ Comparison Variety

__ __.__ cm taller than ___

---

* 6. GROWTH HABIT: (Mature Plants)

_**7**__ 1 = Prostrate ( ) 3 = Semiprostrate ( ) 5 = Horizontal ( )
7 = Semierect (Rebel) 9 = Erect (Mini Mustang)

---

* 7. RHIZOMES (Psuedo):

__ __.__ mm Length _**X**__1 = Absent ( ) 2 = Rare (Rebel) 3 = Common ( )

---

* 8. LEAF BLADE: (Tiller leaves/ turf color)

*_**5**__ Color: 1 = Light green ( ) 3 = Medium light green ( ) 5 = Green ( )
7 = Medium dark green ( ) 9 = Very dark green ( )
__**5**____ Specify rating of comparison variety

*__**1**_ Anthocyanin: 1 = Absent ( ) 9 = Present ( )

*_**9**__ Basal Hairs: 1 = Absent ( ) 9 = Present ( )

*_**5**__ Margins: 1 = Smooth ( ) 5 = Semi-rough ( ) 9 = Rough ( )

*_**5**__Width Class: 1 = Very coarse ( ) 3 = Coarse ( ) 5 = Medium ( )
7 = Fine ( ) 9 = Very Fine ( )

* TILLER LEAF LENGTH CM: (First leaf subtending the flag leaf)

__ __**13.0**__ cm Tiller Leaf Length

__**4.5**__ cm shorter than _**12**__

Length same as _**11**__ Comparison Variety

__.__ cm longer than ___

* TILLER LEAF WIDTH MM:

__**3.4**__ mm Tiller Leaf Width

__**1.5**__ mm narrower than _**1**__

Width same as __**4**_ Comparison variety

__.__ mm wider than ___

FLAG LEAF LENGTH CM:

__ __**10.4**__ cm Flag Leaf Length

__**3.3**__ cm shorter than _**12**__

Length same as _**11**__ Comparison Variety

__.__ cm longer than ___

FLAG LEAF WIDTH MM:

__**2.8**__ mm Flag Leaf Width

__**0.6**__ mm narrower than _**1**__

Width same as _**12**__ Comparison variety

__.__ mm wider than ___

* 9. LEAF SHEATH: (Basal Portion)

*_**9**__ Anthocyanin (seedling): 1 = Absent (K31) 9 = Present ( )

*_**9**__ Auricle Hairiness: 1 = Absent ( ) 9 = Present ( )

* 10. PANICLE: (At seed maturity except where noted.)

*_**5**__ Shape: 1 = Narrow-tapering ( ) 5 = Ovate ( ) 7 = Oblong ( ) 9 = Other (specify)

*_**5**__ Type: 1 = Compact (appressed) 5 = Intermediate ( ) 7 = Open ( ) 9 = Other (specify)

*_**9**__ Orientation: 1 = Nodding ( ) 9 = Erect ( )

*_**9**__ Branch Pubescence: 1 = Glabrous ( ) 9 = Pubescent ( ) **2003 Data**

*_**6**__ Anther Color (At anthesis): 1 = Yellowish Green 2 = Green 3 = Bluish Green **16% yellow-green**
Main 4 = Purplish 5 = Reddish 6= Other **(Yellow)** **10% green**
74% yellow

*__**3**_ Glume Color (At anthesis): 1 = Yellowish Green 2 = Green 3 = Bluish Green
4 = Purplish 5 = Reddish 6= Other (Specify)

*__ __**16.9**__ cm Panicle Length (from base to tip, if nodding, straighten; after anthesis)

__**3.1**__ cm shorter than _**11**__

Length same as _**13**__ Comparison Variety

__.__ cm longer than ___

* 11. SEED: (With Lemma & Pelea)

*__ __**2790** __ __ mg per 1000 seeds

__ _**510**_ __ mg less than _**1**__

Weight same as _**11**__ Comparison Variety

__ __ __ mg more than ___

PALEA: (Keels or Margins) ___ Hairs: 1 = Absent ( ) 5 = Short (Missouri 96) 9 = Long ( )

LEMMA: ___ Hairs: 1 = Absent (Kenhy) 5 = Several ( ) 9 = Many (Missouri 96)

__**5.7**__ mm Lemma Length (Mature)

__**0.7**__ mm shorter than _**11**__

Length same as _**8**__ Comparison Variety

___ mm longer than ___

__**14.6**__ mm Lemma width **(of 10 seeds)**

__**1.5**__ mm narrower than _**1**__

Width same as _**13**__ Comparison variety

___ mm wider than ___

*AWNS: _9__ AWNS: 1 = Absent ( ) 9 = Present (Falcon) **100%** Plants with awns

__2.3__ mm Awn length (Of those present.)

__1.0__ mm Shorter than _8__ **(2003 data)**

Length same as _4__ Comparison Variety

__.__ mm Longer than ___

12. DISEASE, INSECT, AND NEMATODE REACTION: (0= Not Tested 1= Least Resistant 9= Most Resistant)

__0_ Melting-out *Drechslera poae*

__0_ Leaf Spot *D. siccans*

_0__ Net Blotch *D. dictyoides*

_8_ Brown Patch *Rhizoctonia solani*

_0__ C. Leaf Spot *Cercospora fectucae*

__0_ Pink Snow Mold *Gerlachia nivalis*

_0__ Silver Top *F. tricinctum, F. roseum*

_8__ Other Disease ___**Pink Patch**_____

___ Other Insect _____

___ Other Nematode _____

_0__ Blind Seed *Gloeotinia temulenta*

_0__ Dollar Spot *Lanzia, Mollerdiscus* spp.

_0__ Stem Rust *Puccinia graminis*

_0__ T. Blight *Typhula incarnata*

_0__ Pythium Blight *Pythium* spp.

_0__ Powdery Mildew *Erysiphe graminis*

_0__ Crown Rust *Puccinia coronata*

13. ENVIRONMENTAL STRESS

_7__ Drought Stress 1 = Susceptible ( ) 5 = Tolerant ( ) 9 = Resistant ( )

___ Shade Stress 1 = Susceptible ( ) 5 = Tolerant ( ) 9 = Resistant ( )

_8__ Winter Stress 1 = Susceptible ( ) 5 = Tolerant ( ) 9 = Resistant ( )

14. GIVE VARIETY OR VARIETIES THAT MOST CLOSELY RESEMBLE THE APPLICATION VARIETY. For the following characteristics, indicate the degree of resemblance with the following scale:

1 = Application variety is less than comparison variety 2 = Same as 3 = More than, better, greater, darker, etc.

Character	VarietiesRating	Character	VarietiesRating
Leaf Width	**Bonsai 2**	Leaf Color	**Bonsai 2**
Panicle Color	**Rebel II 2**	Panicle Shape	**Bonsai 2**
Seed Size	**Bonsai 2**	Cold Injury	**Cayenne 2**
Winter Color	**Bonsai 3**	Heat	**Cayenne 2**
Disease **(Brown Patch)**	**Cayenne 2**		

* 15. EXPERIMENTAL: Give a brief summary of th xperimental design utilized to collect the data u on this form. Cultural conditions, number of plants measured and plant spacing must be specified.

20040273

Unless noted otherwise, data supplied for Exhibit C were generated in the 2002 season from a spaced planted nursery of individuals from 32 cultivars (or experimental lines) cultured at the research facility of Pickseed West, Inc., Albany, OR. The nursery was established in November 2001. Treatments were arranged in a randomized complete block experimental design with three replications. Each replication for an entry was represented by 20 individuals, transplanted in a single row 50 cm apart within the row. Plant nutrition followed 39.2 kgN/ha^{-1} at transplanting and again in October 2002. Additionally, 100.8kgN/ha^{-1} was split applied in the spring of 2002 and again in 2003. One half of the spring N was applied in March; the other half was applied in April each of the two years.

Scores for items in part 12 of Exhibit C were taken from the 2002 NTEP data progress report no. 03-1.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Z Seeds, LLC and Rutgers, The State Univ. of New Jersey	Roberts LIZ or LIZ	Avenger

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	5. TELEPHONE *(Include area code)*	6. FAX *(Include area code)*
P.O. Box 8, Berlin, MD 21811 Cook College, 88 Lipman Dr., New Brunswick, NJ 08901-8525	(410) 641-3752	(410) 641-3754

7. PVPO NUMBER: 200400273

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. [X] YES [ ] NO

10. Is the applicant the original owner? [X] YES [ ] NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
[ ] YES [ ] NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
[ ] YES [ ] NO If no, give name of country

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.